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IS 959 (1994): Electric soldering irons [ETD 32: Electrical Appliances]

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(तीसरा पुनरीक्षण)

Indian Standard

SPECIFICATION FOR ELECTRIC SOLDERING IRONS

(Third Revision)

UDC 621·791·033-83

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

July 1994 **Price Group 1**

Electrical Appliances Sectional Committee, ET 32

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Electrical Appliances Sectional Committee had been approved by the Electrotechnical Division Council.

This standard covers general, safety and performance requirement of soldering irons.

This standard was first published in 1986. As per the decision of the third meeting of Electrotechnical Division Council, a separate safety standard on electric heating tools has been brought out. In this first revision of this composite standard instead of giving details of safety requirements, reference has been made to the safety standard IS 302-2-45 (1994).

It is intended to prepare composite standards covering general, safety and performance requirement of other heating tools covered under the safety standards on electric heating tools at later date after the suitable performance parameter are established.

For the purposs of deciding whether a particular requirement of this standard is complied with, the final value observed or calculated expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in the standard.

Indian Standard

SPECIFICATION FOR ELECTRIC SOLDERING IRONS

(Third Revision)

1 SCOPE

This standard covers general, safety and performance requirement for soldering irons for use in household premises, for connection to supplies at voltages not exceeding 250V ac single phase, or dc. In addition to soldering irons having the heating element energized from the mains supply, requirements for soldering irons having the heating element energized at extra low voltage from a step down transformer incorporated in or external to the appliance and intermittently rated soldering irons actuated by push switches are included in this specification. It also covers aspirated or de-soldering irons for removing solder from joints.

2 REFERENCES

The following] Indian Standards are necessary adjuncts to this standard·

IS No.	*Title*
302-1 (1979)	Safety of household and similar electrical appliances : Part 1 General requirements (*fifth revision*).
302-2-45 (1994)	Safety of household and similar electrical appliances : Part 2 Particular requirements, Section 45 Electric heating tools.
4827 : 1983	Electroplated coatings of Nickel and chromium on copper and copper alloys (*first revision*).

3 TERMINOLOGY

3.1 Clause **2** of IS 302-2-45 (1994) shall apply.

4 GENERAL REQUIREMENTS

4.1 Clause **3** of IS 302-2-45 (1994) shall apply.

5 GENERAL NOTES ON TEST

5.1 Clause **4** of IS 302-2-45 (1994) shall apply.

6 RATING

6.1 Clause **5** of IS 302-2-45 (1994) shall apply.

7 CLASSIFICATION

7.1 Clause **6** of IS 302-2-45 (1994) shall apply.

8 MARKING

8.1 Clause 7 of IS 302-2-45 (1994) shall apply.

8.2 The soldering irons may also be marked with the standard mark.

8.2.1 The use of the standard Marks is governed by the provisions of *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

9 SAFETY REQUIREMENT

9.1 The soldering irons shall comply with the requirements given in clauses 8 to 32 of IS 302-2-45 (1994).

10 FINISH

10.1 All metal parts of the soldering irons (other than the tip) shall preferably be constructed of corrosion resisting material to prevent oxidation or injury for soldering flux and fumes. Copper, nickel and chromium electroplated coatings may be used to provide the protection. Copper, nickel and chromium electroplated coating shall conform to the requirements as given tn IS 4827 : 1983.

11 PERFORMANCE

11.1 The tip temperature (the temperature on the working surface of the tip when the iron is idle) shall stabilize within the temperature range 300 to 350°C. In addition the time necessary for the temperature of the soldering iron tip to exceed the ambient temperature by 180°C shall be less than 7 minutes.

Compliance is checked by the following test:

The soldering iron with either a fine-wire thermocouple attached to the tip or other suitable temperature measuring device attached shall be energised with rated input. Throughout the test, the soldering iron shall be supported by its handle horizontally in free air. The time necessary for temperature of the soldering iron tip to exceed the ambient temperature of 180°C shall be noted and it shall not exceed the value specified above. When the tip temperature has become stabilized, the temperature shall be measured and it shall be within the range specified above.

12 ENDURANCE

12.1 The soldering iron shall be connected to the supply and operated under conditions of adequate heat discharge such that the input is 1·15 times the maximum rated input which shall be maintained throughout the test. During the operating period, the tip temperature shall be maintained between 300°C and 350°C, if necessary by forced cooling. The soldering iron is operated for 96 hours under those condition..

12.1.1 After the test of **12.1**, the soldering iron shall withstand the electric strength test given in **16.4** of IS 302-1 (1979).

13 TESTS

13.1 Type Tests

The tests specified in Table 1 shall constitute the type tests and shall be carried out on two samples of soldering irons of the same type and rating selected preferably at random from a regular production lot. Before commencement of the tests, the soldering iron shall be visually examined and inspected for obvious visual defects in respect of components, parts and their assembly, construction, mechanical hazards, markings, provision of suitable terminals for supply connections, earthing and the effectiveness of screws and connections. The external surface finish shall be even and free from finishing defects.

13.1.1 *Criteria of Acceptance*

Both samples shall successfully pass all the type tests for proving conformity with the requirements of the standard. If any of the samples fails in any of the type tests, the testing authority at its discretion, may call for fresh samples not exceeding twice the original number and subject them again to all tests or to the test(s) in which failure(s) had occurred. No failure should be permitted in the repeat test(s).

Tabte 1 Schedule of Type Tests

(*Clause* 12.1)

Sl No.	Clause Reference
i) Safety requirement	8 to 32 of IS 302-2-45 (1994)
ii) Finish	10
iii) Performance	11
iv) Endurance	12

13.2 Acceptance Tests

The following shall constitute the acceptance tests:

Test	*Clause Reference*	
a) Protection against electric shock	8 of IS 302-2-45 (1994)	
b) Input	10	do
c) Temperature rise	11	
d) Electrical insulation and leakage current at operating temperature	13	
e) Moisture resistance	15	
f) Insulation resistance and electric strength (after humidity treatment)	16	
g) Provisions for earthing	27	

NOTE — For the purpose of acceptance test, the humidity treatment shall be done for 24 hours while conducting the test for moisture resistance (15).

13.3 A recommended sampling procedure for acceptance tests is given in Appendix B of IS 302-1 (1979).

13.4 Routine Tests

The following shall constitute the routine tests:

Test	*Clause Reference*
a) Protection against electric shock	8 of IS 302-2-45 (1994)
b) High voltage	13.3.2 of IS 302-1 (1979)
c) Provision for earthing	27 of IS 302-2-45 (1994)

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